

Roadmap on Carcinogens 2.0: 2020-2024

Summary and conclusion – FINAL

22.09.25, as agreed on 13 May 2025 by the partners

According to [estimates](#), past and recent exposure to carcinogens at work causes over 100.000 fatalities in the European Union every year. Therefore, the first Roadmap on Carcinogens focused on activating stakeholders to be aware of the health risks of cancer-causing agents at work and on the exchange of good practices to deal with these risks. It was set-up as a voluntary action scheme involving a growing number of stakeholders in the fight against work-related cancer. Launched at a major EU Presidency event in Amsterdam in 2016, it continued to Austria's Presidency in Vienna in 2018 where it was extended to 2019 with the Finnish roadmap event in Helsinki, joining forces with EU-OSHA's Healthy Workplaces campaign 2018-19. In 2020, the second phase of the roadmap (RoC2.0) built on its successful start with even more partners and an ambitious [strategy](#) introducing concrete partner projects to fulfil re-confirmed goals.

1. RoC 2.0 – an overview

In course of RoC2.0 from 2020 to 2024, the 14 partners of the Roadmap on Carcinogens (see fig. 1) dedicated or aligned their respective national or institutional programmes to boost the joint European effort to fight work-related cancer. It was launched in November 2020 during the German Presidency event '[STOP cancer at work](#)' and was concluded during the Belgian Presidency 'Roadmap on Carcinogens 2.0 Closing Event' in June 2024.



Fig. 1: Member State and Institutional partner organisations of the Roadmap on Carcinogens 2.0

The 12 projects performed by dedicated partner teams represent the core action of the second Roadmap phase (Chapter 2). They were started in 2021 and finished in 2024. The broad range of actions included among many others the development of an [educational gamification tool](#) (Challenge 1.2), [leaflets on general S-T-O-P measures](#) (Challenge 2.2), a [new search function for occupations](#) on the newly developed RoC website (Challenge 3.2) and a [two-stage inspection campaign](#) (Challenge 4.2).

The RoC-management - complimentary to the partner's actions - ensured the steady progression and development of the Roadmap goals in general by providing a database of solutions, the publication of

factsheets, communication (maintenance of the RoC [website](#), publishing news, newsletters and social media posts), as well as the organisation of RoC-partner meetings, the support of partners in organising their RoC-related events and EU Presidency conferences and the general coordination of RoC2.0.

2. RoC2.0 – Activities and achievements of the pillars and challenges

The goals of RoC2.0 were allocated to four strategic pillars under each of which the projects or challenges were ranked (fig. 2).



Fig. 2: Roadmap strategic pillars and respective challenges, executed and performed during RoC2.0

In the following, the actions and achievements under each pillar are shortly summarised and the report will link to the respective results on the new website.

2.1 Actions and achievements for 'Raising Awareness'



The aim: A first step in prevention of work-related cancer is raising awareness about the risks caused by carcinogenic substances within the concerned stakeholder community. As awareness strongly relies on reliable and accessible data, one focus of RoC2.0 was set on filling that gap (Ch1.1). Another important factor is the education of future employers and employees about risks, mandatory protection and solutions (Ch1.2).



Better data - Partners: Finland supported by ECHA

- Detailed REPORT on 'Better Data'
- Overview of exposure measurement databases
- Overview of exposure registries
- List of joint research projects



Education is key - Partners: Belgium, Slovenia

- A gamification tool has been developed and is made available through the ROC website in EN, FR, NL and DE (further languages are being developed)
- Lesson proposals on carcinogens for students aged 11 and 14 has been developed and published

Base activities by the RoC management and other activities

- Strengthened exchange between partners and stakeholder community by keeping the fight against work-related cancer high on the political agenda with EU presidency events in Dortmund (2020), Ljubljana (2021), Lisbon (2021), Paris (2022), Madrid (2023), Brussels (2024) and frequent Roadmap partner meetings and national events under EU-OSHA's FAST1 Scheme
- Development of and carrying out a Workers' Exposure Survey on cancer risk factors, by EU-OSHA, a supporting action under the EU Commission's Beating cancer plan² and supporting national events organised by EU-OSHA Focal Points. The survey allows estimate exposure of workers to 24 known cancer risk factors, many of the most relevant for workplace exposures, which include industrial chemicals, process-generated substances and mixtures, and physical risk factors.
- Website redesigned to integrate achieved results and tailored to optimise target group attention and usefulness (launched 09 September 2024)
- Revising the Carcinogens, Mutagens and Reprotoxic substances Directive (CMRD), Chemical Agents Directive (CAD) and Asbestos at Work Directive (AWD) ³ with a view to setting new/revising existing EU limit values for carcinogens, by the EU Commission: OJ L 88, 16.3.2022, OJ L, 2023/266, 30.11.2023, OJ L, 2024/869, 19.3.2024.

Fig. 3: Activities and achievements under Pillar 1 'Raising awareness' in a nutshell

¹ Through its "Focal Point Assistance Tool" (FAST), the EU-OSHA offers its network of national Focal Points (FoPs) financial, logistical and practical support for the implementation of events, PR and media activities aimed at promoting the Agency's main projects and occupational safety and health (OSH) in general at national level.

² European plan to fight cancer, presented in February 2021, to support Member States in improving cancer control and care to reduce the suffering caused by this disease and for Europe to take the lead in the fight against cancer. It is structured around a number of key areas, including prevention. For more information, see https://health.ec.europa.eu/non-communicable-diseases/cancer_en

³ OJ L 158, 30.4.2004, OJ L 131, 5.5.1998 and OJ L 330, 16.12.2009.

2.2 Actions and achievements for 'Providing help'



The aim: Minimisation of risks caused by carcinogenic agents is supported by guidance helping to decide on substitution (**Ch. 2.1**) and the implementation of adequate risk reduction measures (**Ch. 2.2**). It also depends on financial support to either directly install technical solutions or bridge investment cycles (**Ch. 2.3**).



Substitution strategies - Partners: ETUI, Belgium

- Comprehensive summaries for alternatives to substitute carcinogens by safer substances, found in the applications for authorisation under REACH are published.
- A specific set of alternatives for Chromium VI is available [here](#).



Guidance to risk management - Partners: Portugal, Germany

- Downloadable STOP leaflets are available here for each measure.
- A platform that institutions can use to generate CGS based on the template developed by the challenge team. The resulting CGS for employers will be shared on the website.
- Challenge2.2 conclusion report [can be found here](#).



Funds for business - Partners: BusinessEurope, The Netherlands

- The wish for an online overview of current funding possibilities is still valid. Due to a lack of resources it was impossible to reach that goal during RoC2.0.
- In the concluding report a few alternative ways are described. This could be part of the main or extended version of RoC3.0.
- The report on Ch2.3 is part of the joint report covering Ch2.3 and Ch3.1 and is [linked here](#)

Base activities by the RoC management and other activities

- Updating, collecting and publishing solutions (ongoing);
- Updating existing factsheets and adding a significant new, including language versions
- Maintaining and further developing EU-OSHA information resources set up during the Healthy Workplaces campaign, such as the [database of tools and guidance](#) and the [online risk assessment tool](#)
- Integration of Challenge results into redesigned website to allow workers and employers for a targeted search on possible carcinogens at the shop floor
- Roadmap prolonged for a second time until 2027 ([Link](#)) to ensure achieved results will be used in workplace practice ([Strategy RoC3.0](#))

Fig. 4: Activities and achievements under Pillar 2 'Providing help' in a nutshell

2.3 Actions and achievements for 'Mobilising stakeholders'



The aim: Minimisation of risks caused by carcinogenic agents is supported by guidance helping to decide on substitution (**Ch. 2.1**) and the implementation of adequate risk reduction measures (**Ch. 2.2**). It also depends on financial support to either directly install technical solutions or to bridge investment cycles (**Ch. 2.3**).



Engaging industry and sectors - Partners: BusinessEurope, The Netherlands

- BusinessEurope's members, like European cross-industry and sectoral organisations have a continued focus on preventing exposure to carcinogens. There is an active exchange in relevant working groups.
- The report on Ch3.1 is part of the joint report covering Ch2.3 and Ch3.1 and is [linked here](#)



Involving occupational prevention organisations - Partners: Germany, France

- A summary report [can be found here](#)
- This is an important integration on the website. [Check your occupation](#) for the occurrence of carcinogens.



Cooperation with inspectorates - Partners: Austria, Belgium, Netherlands, EU-SLIC

- An [initial collection of inspection activities](#), including inspection campaigns, forms the basis of an ongoing online exchange.
- The SLIC's working group CHEMEX has continued focus on addressing enforcement issues in regard to exposure to chemicals, including carcinogens. CHEMEX is actively collaborating and supporting the RoC by reviewing the received enforcement case studies.



Empowering workers - Partners: ETUI

- A list of Hazardous Medicinal Products has been published to help healthcare workers identify them and prevent occupational exposure to these CMR substances. See [the ETUI's list of hazardous medicinal products \(HMPs\)](#).

Base activities by the RoC management and other activities

- Stakeholder organisations promoted the Roadmap to enlarge the community of partners
- Regular information provided to the Advisory Committee (ACSH), including its Working Party on Chemicals, and with the EU-OSHA's Board and National Focal Points and other relevant bodies.
- The constant search and open mind to find new partners ensured the welcoming of new partners from Norway and Ireland within the 3rd Roadmap phase
- Collaboration with and strengthening of similar campaigns, for example the Surgical Smoke Coalition ([Link](#)), which complemented the set of FactSheets Integration of Challenge results into redesigned website to allow workers and employers for a targeted search on possible carcinogens at the shop floor
- Roadmap prolonged for a second time until 2027 ([Link](#)) to ensure achieved results will be used in workplace practice ([Strategy RoC3.0](#))

Fig. 5: Activities and achievements under Pillar 3 'Mobilising stakeholders' in a nutshell

2.4 Actions and achievement for 'Targeting innovation'



Innovations need to be targeted to meet demands. To support substitution strategies, material innovations (to replace a carcinogen) and technological developments (to promote safe handling and use) need to be adapted to the conditions of the workplaces and be safe(r) by design (Ch. 4.1). A better understanding of how and where process-generated carcinogens are generated (Ch. 4.2) and to come up with practical solutions is another important project to undertake (Ch. 4.3).



Bridging the gap - Partners: BAuA, Germany, Finland

- A [summarising report](#) on the activity is available. This includes a set of OnePagers summarising European initiatives and funding opportunities that would allow for work-related cancer research



Process generated carcinogens - Partners: Austria, TNO, ETUI

- A detailed [report](#) on the Austrian inspection campaign on silica dust is available
- A [report](#) on mineral dust in mining is available
- A [report](#) on process-generated carcinogens (PGC) is available
- FactSheets on [Abrasion](#) and [Combustion](#) are available



- **Safe working procedures - Partners: TNO, Netherlands, Austria**
- A set of educational seminars on safe working procedures (SWP)
- A [report](#) summarising the results on SWP across Europe

Base activities by the RoC management and other activities

- Activities by member state governments have been initiated to promote exchanges between health and safety policy and research institutions to bridge the gap between science and the workplace level;
- Wherever possible, the Roadmap's findings, ideas and solutions were presented and delivered to innovators/researchers.

Fig. 6: Activities and achievements under Pillar 4 'Targeting innovation' in a nutshell

3. Conclusion and evaluation

3.1 Strengths of the Roadmap initiative

In the second Roadmap phase, partners from Germany, Slovenia, Portugal, France, Spain, Belgium and ECHA officially joined the partners from Finland, the EU Commission, ETUC/ETUI, BusinessEurope and EU-OSHA who had supported the initiative founded by The Netherlands and Austria since 2016. In this voluntary action scheme European member states, social partners and European institutions joined forces and dedicated resources within their respective programmes to promote prevention of work-related cancers and boost the support system for companies nationally and Europe-wide.

What made the partnership especially strong are the following assets:

The roadmap fostered **cooperation and constant exchange** among the partners and across all the Member states involved, amongst others in regular face-to-face meetings along Presidency events that deepened the spirit of a joint European initiative and lead to concerted action towards common goals.

Successive Presidencies of the European Council dedicated events and actions to support the Roadmap and deepen the knowledge on many important aspects, thereby highlighting the importance of fighting cancer at work and ensuring that it remained constantly high on the political agenda.

Under the umbrella of the Roadmap, social partners continuously joined action.

The **activities of national labour inspections** helped raise awareness of the topic at the workplace level and had a direct effect on improving prevention at source, where exposures occur. Sharing these experiences among Member states is an invaluable contribution to unifying and raising the level of protection in Europe.

Main European agencies involved with hazardous substances dedicated action and resources targeted at the topic of cancer-causing agents at work. These are specifically the Workers' exposure survey developed and carried out by **EU-OSHA** as a contribution the RoC2.0 and Europe's Beating Cancer Plan⁴, keeping the momentum of the Healthy Workplaces Campaign going and its knowledge base alive, while supporting national exchanges, and support from **ECHA** by data extraction and compilation in course of Challenges 1.1 and 2.1 as well as generation of FactSheets.

Each partner took over their share of responsibility and invested personnel and financial resources **despite the lack of external funding** for the Roadmap projects ('Challenges') and activities in this second phase. Thanks to the partner's efforts and engagement, all projects could be completed and some will even continue (see the results above).

Challenge content was only roughly sketched during the strategy agreement. That offered **flexibility** to re-define activities and scope depending on the existing circumstances and adapting them to the Challenge teams' resources. It lastly allowed a very creative surrounding for the outputs, from reports (**Ch1.1**, **Ch4.1**, **Ch4.2**, **Ch4.3**), leaflets (**Ch2.2**) and a gamification tool (**Ch1.2**) to a core search functionality of the new website (**Ch3.2**).

Lastly, a major contributing factor to the successful journey was an **unchanged and stable management structure** that was available for all partners at all times.

⁴ The survey provides information on workers having multiple exposures during their last working week, meaning exposure to at least two cancer risk factors, which do not necessarily occur at the same time or through the same work process.

The collected data, developed tools, renewed website and well-founded knowledge base serve as a robust foundation to inform employers and workers even in small companies.

3.2 What proved to be difficult?

- Eliminating or reducing exposure to carcinogens should start with chemical or technical substitution solutions that ideally are tailored to minimise the risk to a negligible level. However, chemical or technical innovations usually aim at functional performance; safety (by design) might be of less relevance to developers. Therefore, the Roadmap partners agreed on **targeting innovation** in RoC2.0 and dedicating this action to one pillar. The aim was to reach out to innovators and funding bodies and institutions to raise awareness on needs as regards occupational health and safety and establish a better understanding for hazard-reduced or hazard-free alternatives and exposure reducing technologies - alongside performance.
- Another aspect hampering **targeted research on work-related cancer** is the long latency of health effects and diseases occurring after exposure, which makes prevention difficult. The need for necessary exposure reducing strategies is not easy to communicate when effects are not visible yet or cannot easily be traced to exposures. To strengthen our efforts, the Roadmap management and member states tried to connect Roadmap-related activities to ongoing major European policy and research initiatives focusing on cancer (Europe's Beating Cancer Plan and EU Mission: Cancer⁵ in order to achieve broader policy support and raise awareness among policy makers on the need to prevent work-related cancer. Prevention does not start, for example, at the level of early detection and screening of cancer or at the level of genetic markers – it starts earlier at the level of preventing exposure altogether. Despite efforts, it seemed not possible to formally connect the roadmap challenges to these initiatives (except EU-OSHA's Workers' exposure survey).
- Thanks to the partner's efforts, a lot of results have been achieved in RoC2.0. The outreach could improve, however, if the content was available in all official languages of the EU. **Machine translation** of the updated and newly developed FactSheets was used in an attempt to overcome language barriers. However, while machine translation works well for some languages, such as French, German and Spanish, it did not deliver acceptable results for other languages at that time (2022). The RoC management therefore did not further pursue the use of machine translation in RoC2.0.

3.3 To-Do for RoC3.0 and beyond

- The knowledge base among Roadmap partners is very solid. As a result of the multi-layered action on member state and partner level and on the EU wide scale since 2016, there was a constant focus on carcinogens also with regard to setting binding limit values. However, all partners acknowledge that the mere setting of limit values alone is not enough to prevent exposure. Support to complying with these values is needed and can help in particular smaller enterprises with limited OSH knowledge. As a consequence, the Roadmap partners need to explore means to **improve the implementation** of limit values and making the support systems, including the one provided by the RoC, known and available to all.
- The Roadmap partners will also reinforce their efforts to **connect to the cancer research community** with dedicated meetings in Oslo in 2025, to which the National Institute of Occupational Health in Norway (STAMI) a new partner in RoC3.0, will invite representatives from the Norwegian Cancer Mission Hub. Member state partners are committed to continue these efforts in their respective national networks.

⁵ EU Missions are new initiatives rooted in Horizon Europe's research and innovation programme, to bring concrete solutions to the greatest challenges, such as fighting cancer. [More information can be found here.](#)

- As the **use of artificial intelligence tools** is rapidly evolving and systems are getting better every day in learning to provide for example **improved translations**, the use of AI will be explored in the upcoming period not only for the translation of the FactSheets, but for the translation of the complete Roadmap website.
- Related to the translation of the website, is another major question that is still unresolved. The partners need to find a **permanent solution** that will ensure that the **RoC website** with its central current and continuously newly added information is secured after RoC3.0 concludes in 2027.
- Lastly, the provision of information is a major strength of the Roadmap initiative and the partners need to explore ideas how this can be continued after 2027 to **maintain the multiplier role** the RoC inherits.
- One possible way to ensure the continuation of the Roadmap's achievements and strong assets might be the connection to a **broader theme** that could include the Roadmap's goals under its umbrella. The recent initiative brought forward by the Danish Working Environment Authority supported by many member states to the Commission urgently asked for **prioritising more limit values setting at EU level under both the Carcinogens, Mutagens and Reprotoxic substances Directive and the Chemical Agents Directive**. It could be explored together with all signatories how to follow up on this initiative.
- As both, the EU Commission and EU-OSHA, are important partners of the Roadmap, a careful weighing of options is necessary to prepare for the Roadmaps legacy. On the one hand it could be a strong, political message if the fight against work-related fatalities due to hazardous chemicals was included in the possible next **EU Strategic framework on health and safety at work after 2027** in a similar manner as the Roadmap was included in the EU Strategic framework on health and safety at work 2021-2027. On the other hand, although it is foreseeable that reference to the Roadmap would be made in the possible future EU OSH Strategic framework, at this point in time it is premature to make such commitment before relevant stakeholders and actors have been consulted.